two parts is hardly justifiable, where, as this plant shows, intergradations exist."

JUEL,[22] studying *R. Bischoffii*, found that the cells of the median dorsal region of the thallus are arranged according to the so-called *Euriccia* pattern, while the wings have the *Ricciella* pattern; the smallest air chambers being bounded by 6 cells and the largest by 15. He attributes the presence of the 4-sided air spaces of the middle region to the fact that the ventral cells grow a little more rapidly than do the dorsal cells. The increasingly larger air spaces of the wings are due to very unequal growth of the cells. This work is another example of how artificial and arbitrary distinctions frequently break down when the problem is attacked by an observer trained in morphological methods.—W. J. G. LAND.

Traumatotaxy and chemotaxy.—RITTER[23] has published an article on traumatotaxy and chemotaxy of the nucleus. It adds little that is new and is not markedly critical. In the region of the wound the nuclei in the intact cells move toward the wound and enlarge somewhat. Light and gravity do not modify the reaction, while absence of oxygen and anaesthetics entirely stop it. After five or six days the nuclei recover their normal position; this agrees with the duration of the respiratory acceleration due to wounding. There are a number of parallels between the traumatotactic and chemotactic responses, but the author concludes that the chemotactic effect of endosmosing solutes from the dead cells cannot account for any considerable part of the traumatotactic response. The wound response is much more rapid than the response to chemicals; wounds also produce protoplasmic movements, while the chemicals do not. RITTER believes that in the wound response the nuclei are passively transported by the moving protoplasm; on this point his evidence is certainly not convincing. The effective chemotactic substances were salts, bases, organic acids, and carbohydrates. Inorganic acids and many organic substances were not effective.—WILLIAM CROCKER.

Hybrids at Kew.—A list[24] of all hybrids produced in the Royal Botanic Gardens at Kew, England, will surprise many by its shortness, considering the length of time during which Kew has been one of the great botanical clearing houses of the world, and the obvious advantages it has had on this account for the production of hybrids. The earliest hybrid produced at Kew was the result of a cross between *Rhododendron Griffithianum* and *R. Hookeri*, made in 1874; and in the 36 years from that time, until this list was published, 49 hybrids have been produced, and 12 failures are reported.

---

[22] JUEL, O., Ueber den anatomischen Bau von *Riccia Bischoffii* Hub. Svensk. Bot. Tidsk. **4**:160–166. *pl. 7. figs. 5.* 1910.

[23] RITTER, GASTON, Ueber Traumatotaxis und Chemotaxis des Zellkernes. Zeitschr. Bot. **3**:1–42. 1911.

[24] Hybrids raised at Kew. Kew Bull. **1910**:321–328.

The largest number of hybrids secured in any one year were 6, produced in 1898. It is disappointing to the hybridologist to find in this list almost no data of any scientific significance regarding these hybrids. The brief comments made in connection with each cross refer purely to the value of the result for decorative or other economic purposes, and no definite comparison is made between the characters of the hybrid and those of its parents, except occasionally in regard to cultural matters.—GEO. H. SHULL.

Position of Gnetales.—LIGNIER and TISON[25] have applied their anatomical methods to the so-called "flower" of the Gnetales, and have reached the conclusion that the group belongs to angiosperms, among the Amentales; and that it probably represents a reduction series derived from the "base of the angiosperm trunk." This carries one back to the old conflict over gymnospermy; and in fact the interpretation of the ovule of Gnetales is almost identical with that of the ovule of gymnosperms nearly 100 years ago, for it reads "un ovaire fermé, prolongé en style et stigmate et ne renfermant qu'un seul ovule réduit au nucelle." This conclusion is a good illustration of the use of selected testimony rather than of all available testimony; an eclectic rather than a synthetic judgment. One might imagine a reduction series resulting in an open ovary, for there are open ovaries among angiosperms; but that such a series could result in the reappearance of such structures as archegonia, etc., is beyond the reach even of scientific imagination.—J. M. C.

Cytase and cytocoagulase.—GRÜSS[26] continues his studies upon gum-formation in the cherry and peach. He attributes it to the action of cytase upon the hemicellulose (especially galactans) of the secondary layer of wood vessels. Quantitative analysis shows 4 per cent of the wood vessels to be galactans. Excessive gumming he attributes to abnormally high cytase action. In the spring, when there is a general digestion of the reserved materials, he could detect a dissolution of the secondary layers of the wood vessels in the neighborhood of the cambium. Cytase was also abundant in this region and the vessels were filled with gum. In autumn he finds in the cambium region an enzyme which deposits an insoluble product from the gum, which gives the reactions of hemicellulose; he calls this condensing enzyme "cytocoagulase." The papers of GRÜSS are thrown together in such a way that careful perusal leaves one in doubt as to his exact meaning.—WILLIAM CROCKER.

Germination.—GASSNER[27] continues his studies on the germination of the South American grasses, the present paper reporting on *Stenotaphrum gla-*

---

[25] LIGNIER, O., et TISON, A., Les Gnétales sont des Angiospermes apétales. Compt. Rend. Acad. Sci. Paris **152**:201–204. 1911.

[26] GRÜSS, J., Ueber das Verhalten von Cytase und Cytokoagulase bei Gummibildung. Jahrb. Wiss. Bot. **47**:395–430. 1910.

[27] GASSNER, GUSTAV, Ueber Keimungsbedingungen einiger südamerikanischer Gramineensamen. Ber. Deutsch. Bot. Gesell. **28**:504–512. 1910.